

ABSTRACT OF THE INVENTION

In one aspect the present invention provides a method for manufacturing a silicon carbide semiconductor device. A layer of silicon dioxide is formed on a silicon carbide substrate and nitrogen is incorporated at the silicon dioxide/ silicon carbide interface. In one embodiment, nitrogen is incorporated by annealing the semiconductor device in nitric oxide or nitrous oxide. In another embodiment, nitrogen is incorporated by annealing the semiconductor device in ammonia.

In another aspect, the present invention provides a silicon carbide semiconductor device that has a 4H-silicon carbide substrate, a layer of silicon dioxide disposed on the 4H-silicon carbide substrate and a region of substantial nitrogen concentration at the silicon dioxide/silicon carbide interface.